EMC TEST REPORT

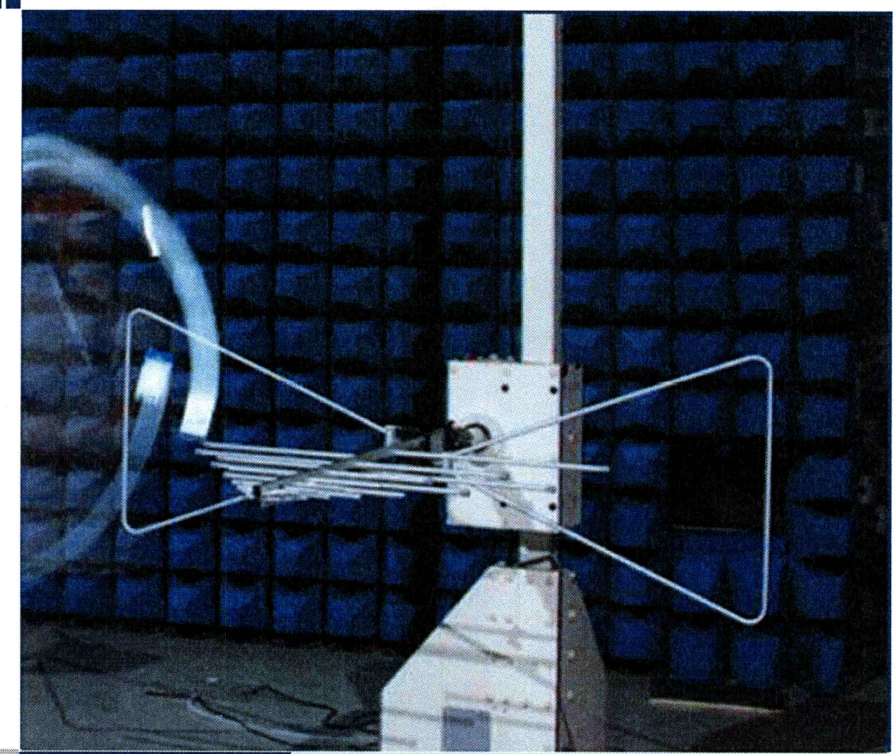
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.

FOR

Wireless Mini Swtich

ISSUED TO
Konec Home Pty Ltd

Suite 5.02 level 5 15 Talavera Road Macquarie Park NSW 2113 Australia



Tested by: Xia Long
Xia Long
Date: Aug. 12, 2021

Approved by:
Liao Jianming
(Technical Director)
Date: Aug. 12, 2021

Report No.:	BL-SZ2160127-401
EUT Name:	Wireless Mini Swtich
Model Name:	WXKG11LM
Brand Name:	Aqara
Test Standard:	AS/NZS CISPR 32: 2015+AMD1:2020
Test Conclusion:	Pass
Test Date:	Jul. 07, 2021
Date of Issue:	Aug. 12, 2021

Block B, 1st FL,Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong, P. R. China 518055
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Revision History

Version	Issue Date	Revisions Content
Rev. 01	Aug. 12, 2021	Initial Issue

TABLE OF CONTENTS

1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100
Fax Number	+86 755 6182 4271

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Laboratory Condition

Ambient Temperature	23°C to 27°C
Ambient Relative Humidity	50% to 55%
Ambient Pressure	100 kPa to 102 kPa

1.4 Announce

(1) The test report reference to the report template version v4.1.

(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.

(3) The test report is invalid if there is any evidence and/or falsification.

(4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.

(5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.

(6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

(7) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Konec Home Pty Ltd
Address	Suite 5.02 level 5 15 Talavera Road Macquarie Park NSW 2113 Australia

2.2 Manufacturer Information

Manufacturer	Lumi United Technology Co., Ltd
Address	8th Floor, JinQi Wisdom Valley, No.1 Tangling Road, Liuxian Ave, Taoyuan Residential District, Nanshan District, Shenzhen, China

2.3 Factory Information

Factory	SHENZHEN SEG SMARTECHS CO.,LTD. Manufacturing Center
Address	1~3F of Manufacturing Center, No.1,Saige Navigation Technology Park, No.28,Cuibao Road,Baolong Industrial Zone, Longgang Street, Longgang District ,Shenzhen City, Guangdong Province ,China

2.4 General Description for Equipment under Test (EUT)

EUT Name	Wireless Mini Swtich
Model Name Under Test	WXKG11LM
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	V1.0.1
Software Version	V1.0.1
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	Battery	
	Brand Name	Panasonic
	Model No.	CR2032
	Serial No.	N/A
	Rated Voltage	3 V

2.6 Technical Information

Network and Wireless connectivity		Zigbee
Interfaces present on the EUT	AC Ports	N/A
	DC Ports	N/A
	I/O Ports	N/A
	Telecom Ports	N/A

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	AS/NZS CISPR 32:2015+AMD1:2020	Electromagnetic compatibility of multimedia equipment —Emission requirements

3.2 Verdict

No.	Base Standard	Description		Test Verdict	Result	Remark
Emission						
1	CISPR 32	Radiated Emission	Below 1 GHz	Pass	ANNEX A.1	--
			Above 1 GHz	Pass		--
2	CISPR 32	Conducted Emission	Mains terminals	N/A	ANNEX A.2	Note 1
			Asymmetric mode	N/A	ANNEX A.3	--
			Differential voltage	N/A	ANNEX A.4	Note 2
Note 1: The EUT power by button battery. Note 2: For Class B broadcasting receiver only.						

3.3 Test Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Radiated emissions (30 MHz-1 GHz)	3.67 dB
Radiated emissions (1 GHz-18 GHz)	3.57 dB

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

Environment Parameter	Selected Values During Tests			
	Temperature	Voltage	Relative Humidity	Ambient Pressure
Normal Temperature, Normal Voltage (NTNV)	23°C to 27°C	DC 3V	50% to 55%	100 kPa to 102 kPa

4.2 Test Equipment

Radiated Emission Test						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9038A	MY55330122	2020.09.18	2021.09.17	☒
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2019.07.02	2022.07.01	☒
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	9120D-1600	2019.07.02	2022.07.01	☒
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2020.03.16	2023.03.15	☒
Test Software	BALUN	BL410_E	V19.918	--	--	☒

4.3 Test Enclosure list

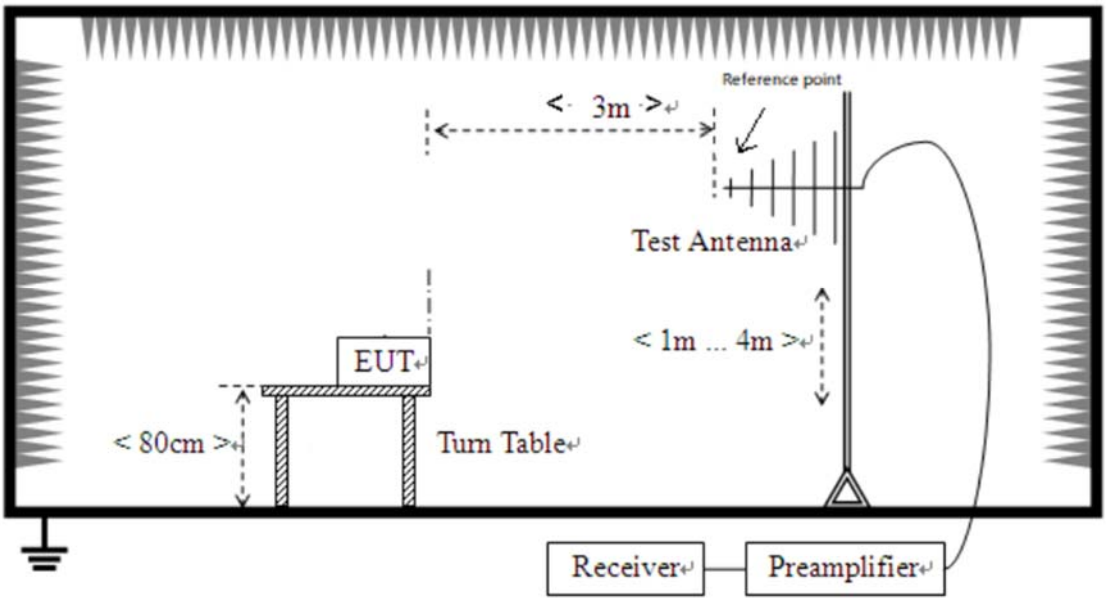
N/A

4.4 Test Configurations

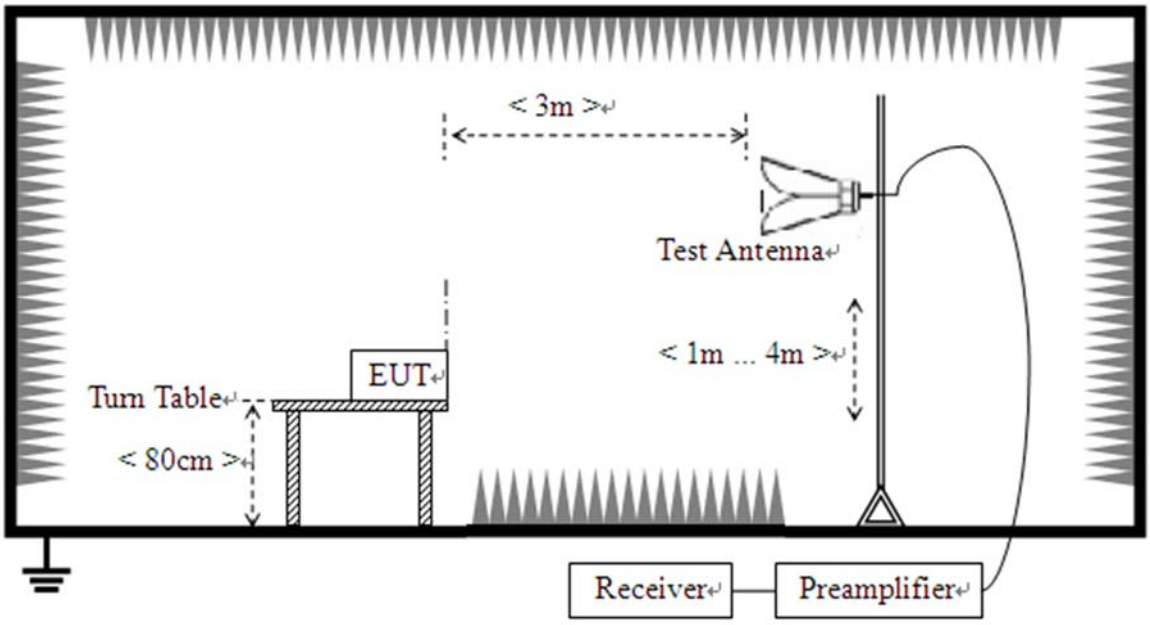
Test Configurations (TC) No.	Description
TC01	The Normal Working Test Mode EUT

4.5 Test Setups

Test Setup 1



(For Radiated Emission Test (30 MHz-1 GHz))



(For Radiated Emission Test (above 1 GHz))

4.6 Test Conditions

Test Case	Test Conditions	
Radiated Emission	Test Env.	NTNV
	Test Setup	Test Setup 1
	Test Configuration	TC01 Note

5 TEST ITEMS

5.1 Emission Tests

5.1.1 Radiated Emission

5.1.1.1 Limit

Frequency range (MHz)	Class A (at 10 m)	Class B (at 10 m)
	Quasi-Peak Limit (dBμV/m)	Quasi-Peak Limit (dBμV/m)
30 - 230	40	30
230 - 1000	47	37

Frequency range (MHz)	Class A (at 3 m)		Class B (at 3 m)	
	Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)
1000-3000	76	56	70	50
3000-6000	80	60	74	54

Requirements for radiated emissions from FM receivers

Frequency range (MHz)	Measurement		Quasi-Peak Limit (dBμV/m) Fundamental	Quasi-Peak Limit (dBμV/m) Harmonics	Quasi-Peak Limit (dBμV/m) Other
	Facility	Distance (m)			
30-230	OATS/SAC	10	50	42	30
230-300				42	37
300-1000				46	37
30-230	OATS/SAC	3	60	52	40
230-300				52	47
300-1000				56	47

NOTE:

1) The lower limit shall apply at the transition frequency.
2) Additional provisions may be required for cases where interference occurs.

5.1.1.2 Test Setup

Please refer to 4.5 section description of test setup of test setup 1. The photo of test setup please refer to ANNEX B.

5.1.1.3 Test Procedure

An initial pre-scan was performed in the chamber using the EMI Receiver in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bi-Log antenna with 2 orthogonal polarities.

5.1.1.4 Test Result

Please refer to ANNEX A.1.

ANNEX A TEST RESULTS

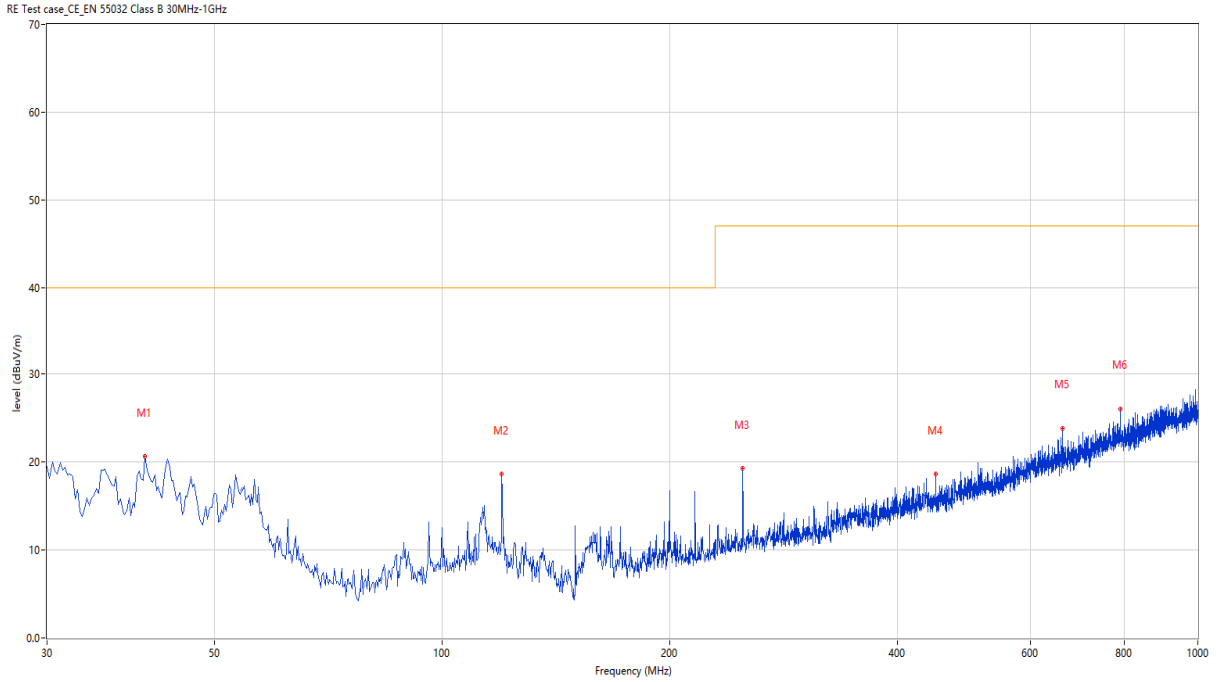
A.1 Radiated Emission

Note 1: To reduce the testing time, a peak measuring receiver may be used instead of a quasi-peak measuring receiver. In case of dispute, measurement with a quasi-peak measuring receiver will take precedence.

Test Data and Plots (Below 1 GHz)

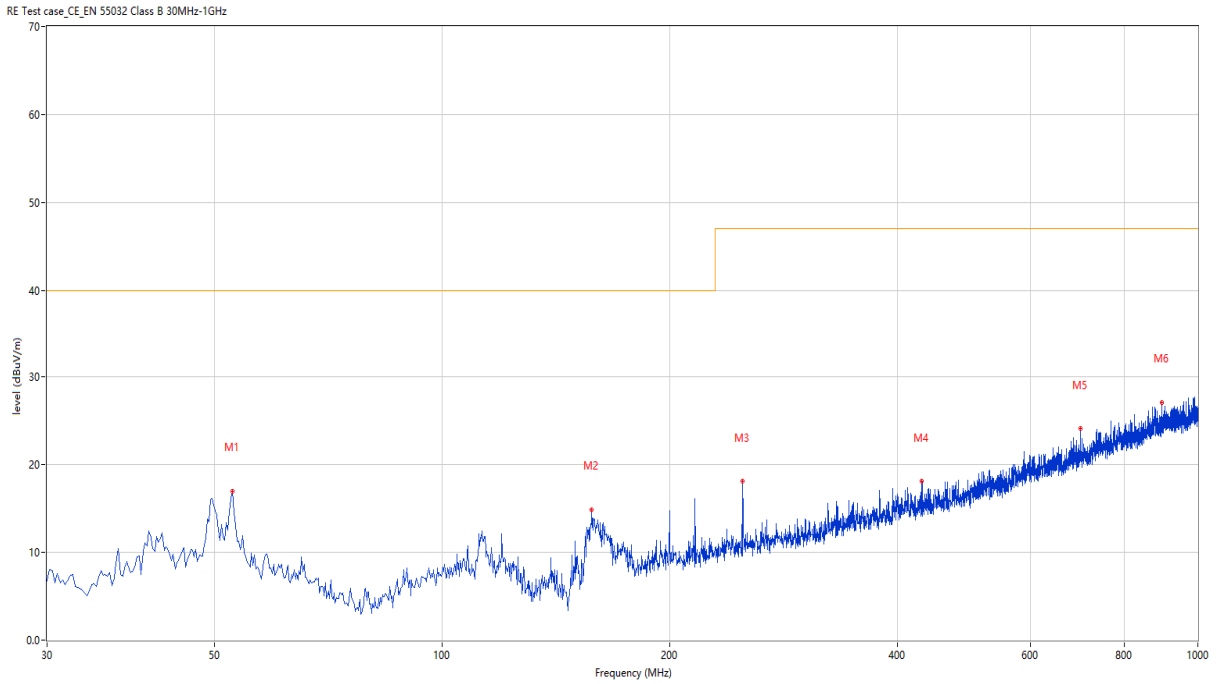
The Normal Working Test Mode

A.1.1 Test Antenna Vertical, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	40.428	20.66	-26.24	40.0	-19.34	Peak	162.00	200	Vertical	Pass
2	119.967	18.66	-28.95	40.0	-21.34	Peak	178.00	100	Vertical	Pass
3	249.947	19.33	-24.72	47.0	-27.67	Peak	189.00	200	Vertical	Pass
4	450.010	18.66	-20.34	47.0	-28.34	Peak	195.00	100	Vertical	Pass
5	662.440	23.86	-15.59	47.0	-23.14	Peak	105.00	200	Vertical	Pass
6	789.510	26.06	-12.87	47.0	-20.94	Peak	122.00	200	Vertical	Pass

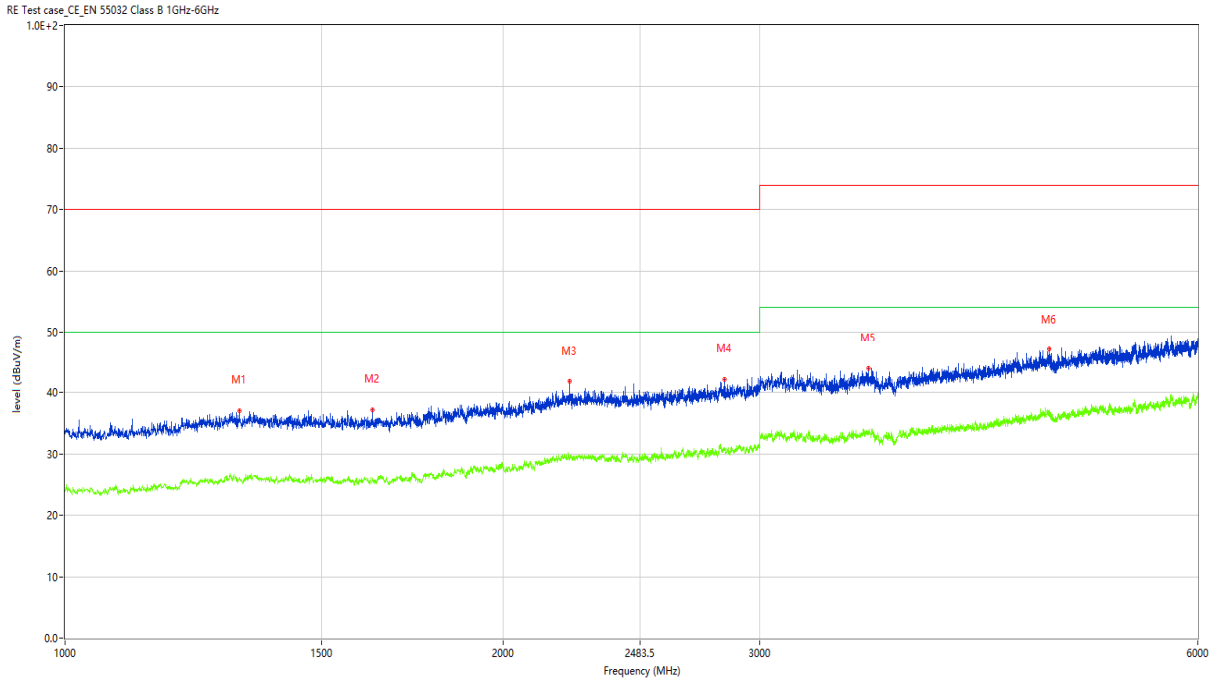
A.1.2 Test Antenna Horizontal, 30 MHz – 1 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	52.795	17.02	-25.45	40.0	-22.98	Peak	293.00	200	Horizontal	Pass
2	157.798	14.89	-28.64	40.0	-25.11	Peak	289.00	200	Horizontal	Pass
3	249.947	18.12	-24.72	47.0	-28.88	Peak	298.00	200	Horizontal	Pass
4	431.580	18.09	-20.49	47.0	-28.91	Peak	192.00	100	Horizontal	Pass
5	699.542	24.12	-14.70	47.0	-22.88	Peak	83.00	200	Horizontal	Pass
6	895.968	27.13	-11.10	47.0	-19.87	Peak	345.00	100	Horizontal	Pass

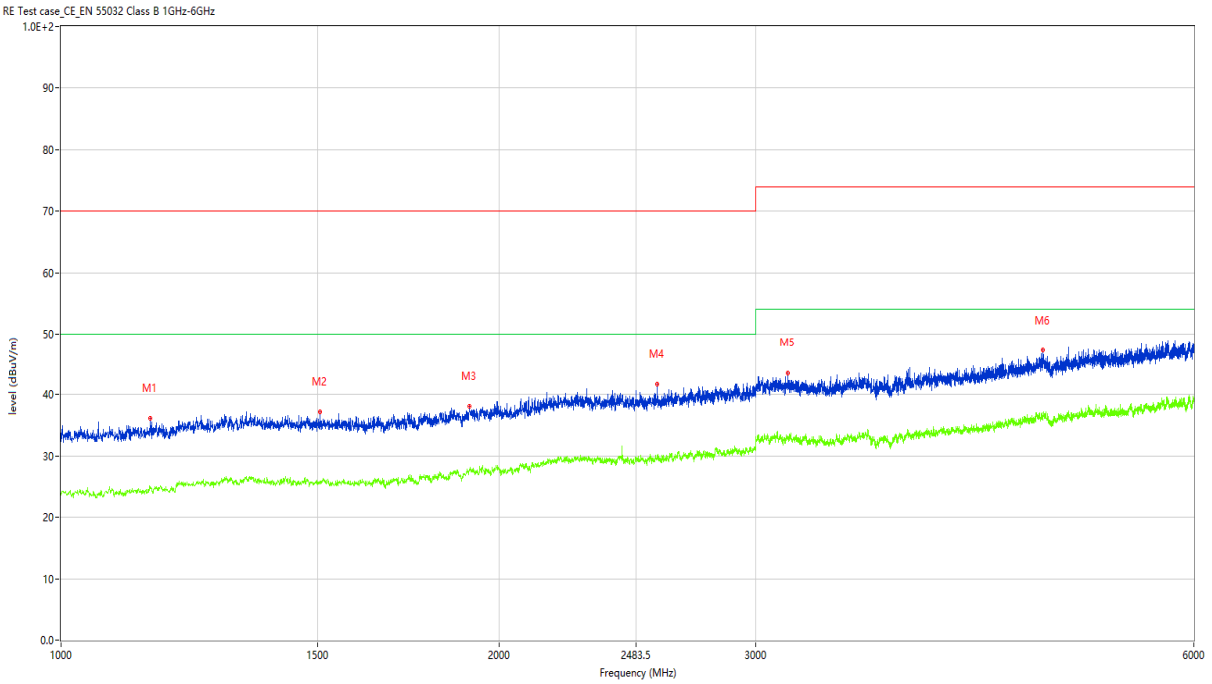
Test Data and Plots (Above 1 GHz)

A.1.3 Test Antenna Vertical, 1 GHz – 6 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1317.500	37.11	-15.77	70.0	-32.89	Peak	15.00	100	Vertical	Pass
1**	1317.500	25.90	-15.77	50.0	-24.10	AV	15.00	100	Vertical	Pass
2	1626.000	37.27	-16.43	70.0	-32.73	Peak	8.00	100	Vertical	Pass
2**	1626.000	26.09	-16.43	50.0	-23.91	AV	8.00	100	Vertical	Pass
3	2221.500	41.83	-12.21	70.0	-28.17	Peak	114.00	100	Vertical	Pass
3**	2221.500	29.55	-12.21	50.0	-20.45	AV	114.00	100	Vertical	Pass
4	2836.500	42.22	-9.18	70.0	-27.78	Peak	258.00	100	Vertical	Pass
4**	2836.500	30.87	-9.18	50.0	-19.13	AV	258.00	100	Vertical	Pass
5	3563.250	44.03	-5.92	74.0	-29.97	Peak	34.00	100	Vertical	Pass
5**	3563.250	33.51	-5.92	54.0	-20.49	AV	34.00	100	Vertical	Pass
6	4742.250	47.13	-2.84	74.0	-26.87	Peak	169.00	100	Vertical	Pass
6**	4742.250	36.29	-2.84	54.0	-17.71	AV	169.00	100	Vertical	Pass

A.1.4 Test Antenna Horizontal, 1 GHz – 6 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1152.000	36.08	-16.86	70.0	-33.92	Peak	316.00	100	Horizontal	Pass
1**	1152.000	24.70	-16.86	50.0	-25.30	AV	316.00	100	Horizontal	Pass
2	1506.000	37.15	-16.15	70.0	-32.85	Peak	355.00	100	Horizontal	Pass
2**	1506.000	25.74	-16.15	50.0	-24.26	AV	355.00	100	Horizontal	Pass
3	1907.500	38.06	-14.22	70.0	-31.94	Peak	46.00	100	Horizontal	Pass
3**	1907.500	27.80	-14.22	50.0	-22.20	AV	46.00	100	Horizontal	Pass
4	2568.500	41.73	-11.00	70.0	-28.27	Peak	320.00	100	Horizontal	Pass
4**	2568.500	29.89	-11.00	50.0	-20.11	AV	320.00	100	Horizontal	Pass
5	3156.750	43.58	-7.31	74.0	-30.42	Peak	256.00	100	Horizontal	Pass
5**	3156.750	32.90	-7.31	54.0	-21.10	AV	256.00	100	Horizontal	Pass
6	4726.500	47.27	-2.77	74.0	-26.73	Peak	176.00	100	Horizontal	Pass
6**	4726.500	36.35	-2.77	54.0	-17.65	AV	176.00	100	Horizontal	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2106127-AE.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2106127-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2106127-AI.PDF”.

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